

Contributors to This Issue

MICHAEL CHRUNEY, B. S. cum laude, 1948 and M. S., 1949, Pennsylvania State University. In 1941 and 1942 he was employed by Western Electric Company. His work as a Member of the Technical Staff of Bell Telephone Laboratories dates from 1949 and includes testing and design of magnetrons, radar and switching research. He is a member of I.R.E. and a member of Eta Kappa Nu, Pi Mu Epsilon, Tau Beta Pi, Sigma Tau and Phi Epsilon Sigma.

G. C. DACEY, B.S., 1942, University of Illinois and Ph.D. 1951, California Institute of Technology. During his undergraduate days, he was employed at the Westinghouse Research Laboratories. He joined the technical staff of Bell Telephone Laboratories in 1951 and since has worked on transistor research and development. He is the author of articles for the Physical Review on transistor physics. Member of I.R.E. American Physical Society, Phi Kappa Phi, Sigma Xi, Tau Beta Pi, and Eta Kappa Nu.

GEORGE H. DOWNES, Ph.B., Sheffield Scientific School, Yale University, 1920. He has been with the Bell System since 1921, transferring with the Development and Research Department of A. T. & T. Co. to the Bell Telephone Laboratories in 1934. Throughout his career he has been associated with work in switching systems. Last year he was appointed Switching Systems Engineer with responsibility for engineering and maintenance aspects of local dial switching systems. He is a New York State Professional Engineer, a member of A.I.E.E. and Sigma Xi.

WALTER B. ELLWOOD, A.B. University of Missouri, 1924; A.M. 1926 and Ph.D. (Physics) 1933, Columbia University. His early work at Bell Telephone Laboratories from 1930 to 1935 was concerned with investigation of properties of magnetic material at very low flux densities. Later he worked on applications of magnetic material to apparatus, in the course of which he invented the glass sealed reed relay. From 1940 to 1943 he served as scientific consultant with the Bureau of Ordnance, Navy Department, Washington. He returned to the Bell Telephone Laboratories to develop pilot manufacturing processes for the reed relay.

More recently he is concerned with the fundamental physics of electrical contacts and the development of new forms of sealed switches. He is a Fellow of the American Physical Society, and the American Association for the Advancement of Science, and also a member of the Columbia University Chapter of Sigma Xi, the American Society for Metals, and the Cosmos Club, Washington.

E. L. ERWIN, in 1918, received the B.S. degree from the University of Chicago. He joined the Installation Department of the Western Electric Company in 1921, and for the next three years was occupied in installing panel offices. Following this, he joined the Technical Staff of Bell Telephone Laboratories, where he worked in the circuit laboratory until 1932. He then transferred to circuit design work and has since been engaged in development work on panel, crossbar, and PBX systems. He has been engaged in work on the No. 5 crossbar switching system since its inception.

H. W. HERMANC joined the Laboratories in 1927 with prior experience in chemical analysis gained in toxicological and criminological work. He had also worked with the Crucible Steel Company and had spent four years with Proctor and Gamble developing analytical methods for controlling raw materials and manufactured products. During this period he carried on part time study at Newark Technical School and later at Columbia University. From 1925 to 1927 Mr. Hermance was with the Western Electric Company at Kearny working on the analytical control of materials. Since coming to the Laboratories he has specialized in developing micro-analytical methods and laboratory facilities and has had a prominent part in applying these techniques to the diagnosis of telephone manufacturing and operating problems.

M. E. HINES, B.S. in applied physics, 1940, B.S. in meteorology, 1941, M.S.E.E., 1946, California Institute of Technology. He came to Bell Telephone Laboratories in 1946, having been with the Southern California Telephone Company during his undergraduate years. His work here has been on the development of vacuum tubes for ultra high-frequency amplification and information storage. During World War II, he was a weather officer for the U. S. Air Force. He is a member of I.R.E. and Tau Beta Pi.

R. W. KETCHLEDGE, B.S., Massachusetts Institute of Technology, 1942; M.S., Massachusetts Institute of Technology, 1942; Bell Telephone Laboratories, 1942-. During World War II, Mr. Ketchledge assisted in research related to infra-red detecting devices and in the

development of sonar devices. After the war he spent two years working on the development of the Key West-Havana submarine cable system and from 1949-53 he was in charge of systems design for the L3 coaxial system. Early in 1953 Mr. Ketchledge was appointed Electronic Apparatus Development Engineer responsible for gas tube and storage tube development, and in June, 1954, he was named Switching Systems Development Engineer, responsible for major system components for electronic switching systems. Member of Sigma Xi.

G. T. KOHMAN, B.S., Kansas University, 1920; Ph.D., Yale University, 1923. Dr. Kohman joined the Western Electric Company in 1923 and Bell Telephone Laboratories in 1925. His earliest Bell System work involved studies of the absorption of water and oxygen in connection with the development of submarine cable compounds. From 1925 to 1940 he studied capacitor and other dielectric problems and was associated with the development of the dielectric used in the present central office and customer set capacitors. He was in charge of early work on the metallized paper capacitor. Dr. Kohman headed one of the groups in the wartime Manhattan Project. Since then he has worked on growth of piezoelectric crystals, development of ceramic materials, base metal contacts, dielectrics and semiconductors. At present he is in charge of the Physical Chemical Research and Development Group. Member American Chemical Society, American Ceramic Society, Professional Chapter of Alpha Chi Sigma, Tau Beta Pi, Sigma Xi, Gamma Alpha and Sigma Tau.

C. Y. LEE, B.E.E., Cornell University, 1947; M.S.E.E., 1949, and Ph.D. in Mathematics, 1954, University of Washington. John McMullen Regional Scholar, Cornell University, 1944-1947. Instructor in the Electrical Engineering Department at the University of Washington from 1948 to 1951. He joined Bell Telephone Laboratories in 1952, as a mathematician with the Switching Development Department. Member of the I.R.E., American Mathematical Society, Sigma Xi, Eta Kappa Nu and Pi Mu Epsilon.

JOHN A. MCCARTHY, B.S., Union College, 1947; M.A., Columbia University, 1949; Ph.D., University of Rochester, 1952. He joined Bell Telephone Laboratories in 1954, after four years of nuclear physics research for the A.E.C. at Massachusetts Institute of Technology and the University of Rochester. He has since been concerned with design and evaluation of storage tubes. Author of two articles on radioactivity for

the Physical Review. He is a member of the American Physical Society, Sigma Xi and Phi Beta Kappa.

ARTHUR C. MEHRING, B.S.E.E., University of Maryland, 1941; M.S., Stevens Institute of Technology, 1955. A design engineer of power protective devices for Westinghouse Electric Corporation for four years, he then joined the Technical Staff of Bell Telephone Laboratories in 1945 as a member of the Switching Systems Development Department. He has been engaged principally in developing and analyzing switching circuits for the No. 5 crossbar system. For the past year he has been with the Switching Systems Engineering Department. At present he is working on the system phases of the electronic line concentrator development. Member of I. R. E., Tau Beta Pi and Phi Kappa Phi.

IAN MUNRO ROSS, B.A., Gonville and Caius College, Cambridge University, 1948; M.A. and Ph.D., Cambridge University, 1952. Dr. Ross joined Bell Telephone Laboratories in 1952, working first in transistor-physics and then in solid state device development. He is primarily concerned with the design of transistors for switching apparatus. Graduate member of the Institution of Electrical Engineers (England).